

CLAIMS

1. A socket-head screw made merely by successive cold working operations using a steel having a carbon content lying in the range 0.15% to 0.25%.

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2. A screw according to claim 1, characterized by the fact that the carbon content lies in the range 0.19% to 0.23%.

10 3. A screw according to claim 1 or claim 2, characterized by the fact that it has a socket head in which the depth of the socket is greater than 0.6 times and preferably greater than 0.8 times its diameter.

15 4. A screw according to any one of claims 1 to 3, characterized by the fact that the manganese content lies in the range 1.00% to 1.50%, and preferably in the range 1.00% to 1.30%.

20 5. A screw according to any one of claims 1 to 4, characterized by the fact that the boron content lies in the range 10 ppm to 50 ppm, and preferably in the range 20 ppm to 50 ppm.

25 6. A screw according to any one of claims 1 to 5, characterized by the fact that its constituent material includes microadditions of titanium.

30 7. A screw according to any one of claims 1 to 6, characterized by the fact that it includes 0.01% to 0.10% titanium, and preferably 0.02% to 0.05%.

35 8. A screw according to any one of claims 1 to 7, characterized by the fact that the silicon content lies in the range 0.30% to 0.40%.

9. A screw according to any one of claims 1 to 8, characterized by the fact that the chromium content lies in the range 0.14% to 0.18%.

5 10. A screw according to any one of claims 1 to 9, characterized by the fact that the sulfur content is 0.015% max.

10 11. A screw according to any one of claims 1 to 10, characterized by the fact that it is made using a wire presenting the following mechanical properties: $R_m > 580$ MPa and $R_e > 340$ MPa.

15 12. A screw according to any one of claims 1 to 11, characterized by the fact that it is made using a wire presenting ductility $Z\% > 65\%$.

20 13. A screw according to any one of claims 1 to 12, characterized by the fact that it is made using the following materials:

- C content: 0.19% to 0.23%;
- Si content: 0.30% to 0.40%;
- Mn content: 1.00% to 1.30%;
- P content: 0.025% max;
- 25 - S content: 0.015% max;
- Cr content: 0.14% to 0.18%;
- Mo content: 0.05% max;
- Cu content: 0.25% max;
- B content: 0.0020% to 0.0050% max;
- 30 - Ni content: 0.18% max;
- Al content: 0.02% to 0.06%;
- Ti content: 0.02% to 0.05%; and
- N content: 0.012% max.

35 14. The use of a screw in accordance with any one of claims 1 to 13 in making screws for securing wheels to motor vehicles.